

SEQUENCE LISTING

8/11/000

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 Ser Ser Pro Pro Arg Ala Glu Arg Lys Arg Trp Gly Trp Gly Arg Leu
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 Pro Gly Ala Arg Arg Gly Ser Ala Gly Leu Ala Lys Lys Cys Pro Phe
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 Ser Leu Glu Leu Ala Glu Gly Gly Pro Ala Gly Gly Ala Leu Tyr Ala
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108

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ccc acc ggc tgg aaa tgc ttc gtt tac cac ttc gcc gtc ttc ctc atc Pro Thr Gly Trp Lys Cys Phe Val Tyr His Phe Ala Val Phe Leu Ile 120 . 125 . 130 .	558
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Gly Lys Thr Ile Ala Ser Cys Phe Ser Val Phe Ala Ile Ser Phe Phe	
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Gln Lys Gln Arg Gln Lys His Phe Asn Arg Gln Ile Pro Ala Ala Ala	
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102

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Ala Leu Tyr Ala Pro Ile Ala Pro Gly Ala Pro Gly Pro Ala Pro Pro
50 55 60
Ala Ser Pro Ala Ala Pro Ala Ala Pro Pro Val Ala Ser Asp Leu Gly
65 70 75 80
Pro Arg Pro Pro Val Ser Leu Asp Pro Arg Val Ser Ile Tyr Ser Thr
85 90 95
Arg Arg Pro Val Leu Ala Arg Thr His Val Gln Gly Arg Val Tyr Asn
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Phe Leu Glu Arg Pro Thr Gly Trp Lys Cys Phe Val Tyr His Phe Ala
115 120 125
Val Phe Leu Ile Val Leu Val Cys Leu Ile Phe Ser Val Leu Ser Thr
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165 170 175
Ser Ala Gly Cys Arg Ser Lys Tyr Val Gly Leu Trp Gly Arg Leu Arg
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Phe Ala Arg Lys Pro Ile Ser Ile Ile Asp Leu Ile Val Val Val Ala
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Ser Met Val Val Leu Cys Val Gly Ser Lys Gly Gln Val Phe Ala Thr
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Ser Ala Ile Arg Gly Ile Arg Phe Leu Gln Ile Leu Arg Met Leu His
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Val Asp Arg Gln Gly Gly Thr Trp Arg Leu Leu Gly Ser Val Val Phe
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Ile His Arg Gln Glu Leu Ile Thr Thr Leu Tyr Ile Gly Phe Leu Gly
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104

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 610 615 620
 Pro Gly Ser Gly Gly Pro Pro Arg Glu Gly Gly Ala His Ile Thr Gln
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105

Pro Cys Gly Ser Gly Gly Ser Val Asp Pro Glu Leu Phe Leu Pro Ser
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Thr Lys Leu Trp Gln Glu Thr Val Gln Gln Gly Gly Asn Met Ser Gly
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ctg gcc cgc agg tcc ccc cgc agc ggt gac ggc aag ctg gag gcc ctc 327
 Leu Ala Arg Arg Ser Pro Arg Ser Gly Asp Gly Lys Leu Glu Ala Leu
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tac gtc ctc atg gta ctg gga ttc ttc ggc ttc ttc acc ctg ggc atc 375
Tyr Val Leu Met Val Leu Gly Phe Phe Gly Phe Phe Thr Leu Gly Ile
50 55 60

atg ctg agc tac atc cgc tcc aag aag ctg gag cac tcg aac gac cca 423
 Met Leu Ser Tyr Ile Arg Ser Lys Lys Leu Glu His Ser Asn Asp Pro
 65 70 75

ttc aac gtc tac atc gag tcc gat gcc tgg caa gag aag gac aag gcc	471	
Phe Asn Val Tyr Ile Glu Ser Asp Ala Trp Gln Glu Lys Asp Lys Ala		
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tat gtc cag gcc cg^g gtc ctg gag agc tac agg tcg tgc tat gtc gtt 519
 Tyr Val Gln Ala Arg Val Leu Glu Ser Tyr Arg Ser Cys Tyr Val Val
 95 100 105

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Glu Asn His Leu Ala Ile Glu Gln Pro Asn Thr His Leu Pro Glu Thr
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 35 40 45

Met Val Leu Gly Phe Phe Gly Phe Phe Thr Leu Gly Ile Met Leu Ser
 50 55 60

Tyr Ile Arg Ser Lys Lys Leu Glu His Ser Asn Asp Pro Phe Asn Val
 65 70 75 80

Tyr Ile Glu Ser Asp Ala Trp Gln Glu Lys Asp Lys Ala Tyr Val Gln
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Ala Arg Val Leu Glu Ser Tyr Arg Ser Cys Tyr Val Val Glu Asn His
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Pro

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 <223> Description of Artificial Sequence:Hypothetical sequence to demonstrate calculation of percent homology or identity.

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121

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<212> PRT
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1 5 10 15

Val Val Arg Leu Trp Ser Ala Gly Cys Arg Ser Lys Tyr Val Gly Leu
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Trp Gly Arg Leu Arg Phe Ala Arg Lys Pro Ile Ser Ile Ile Asp Leu
35 40 45

Ile Val Val Val Ala Ser Met Val Val Leu Cys Val Gly
50 55 60

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<212> PRT
<213> Homo sapiens

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Ser Lys Gly Gln Val Phe Ala Thr Ser Ala Ile Arg Gly Ile Arg Phe
1 5 10 15

Leu Gln Ile Leu Arg Met Leu His Val Asp Arg Gln Gly Gly Thr Trp
20 25 30

Arg Leu Leu Gly Ser Val Val Phe Ile His Arg Gln Glu Leu Ile Thr
35 40 45

Thr Leu Tyr Ile Gly Phe Leu Gly Leu Ile Phe Ser Ser Tyr Phe Val
50 55 60

Tyr Leu Ala Glu Lys Asp Ala Val Asn Glu Ser Gly Arg Val Glu Phe
65 70 75 80

123

Gly Ser Tyr Ala Asp Ala Leu Trp Trp Gly Val Val Thr Val Thr Thr
 85 90 95

Ile Gly Tyr Gly Asp Lys Val Pro Gln Thr Trp Val Gly Lys Thr Ile
 100 105 110

Ala Ser Cys Phe Ser Val Phe Ala Ile Ser Phe Phe Ala Leu Pro Ala
 115 120 125

Gly Ile Leu Gly Ser Gly Phe Ala Leu
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<211> 66

<212> PRT

<213> Drosophila melanogaster

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Lys His Tyr Lys Val Phe Asn Thr Thr Asn Gly Thr Lys Ile Glu
 20 25 30

Glu Asp Glu Val Pro Asp Ile Thr Asp Pro Phe Phe Leu Ile Glu Thr
 35 40 45

Leu Cys Ile Ile Trp Phe Thr Phe Glu Leu Thr Val Arg Phe Leu Ala
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Cys Pro
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<213> Drosophila melanogaster

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 20 25 30

Glu Asp Thr Leu Asn Leu Pro Lys Ala Pro Val Ser Pro Gln Asp Lys
 35 40 45

Ser Ser Asn Gln Ala Met Ser Leu Ala Ile Leu Arg Val Ile Arg Leu
 50 55 60

Val Arg Val Phe Arg Ile Phe Lys Leu Ser Arg His Ser Lys Gly Leu
 65 70 75 80

Gln Ile Leu Gly Arg Thr Leu Lys Ala Ser Met Arg Glu Leu Gly Leu
 85 90 95

Leu Ile Phe Phe Leu Phe Ile Gly Val Val Leu Phe Ser Ser Ala Val
 100 105 110

| 124

Tyr Phe Ala Glu Ala Gly Ser Glu Asn Ser Phe
115 120

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Val Pro Val Ile Val Ser Asn Phe Asn Tyr
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Ser Phe Glu Leu Lys Arg Glu Thr Leu Val Ala Thr Asp Pro Pro Arg
35 40 45
Pro Thr Ile Asn Leu Asp Pro Arg Val Ser Ile Tyr Ser Gly Arg Arg
50 55 60
Pro Leu Phe Ser Arg Thr Asn Ile Gln Gly Arg Val Tyr Asn Phe Leu
65 70 75 80
Glu Arg Pro Thr Gly Trp Lys Cys Phe Val Tyr His Phe Thr Val Phe
85 90 95
Leu Ile Val Leu Ile Cys Leu Ile Phe Ser Val Leu Ser Thr Ile Gln
100 105 110
Gln Tyr Asn Asn Leu Ala Thr Glu Thr Leu Phe Trp Met Glu Ile Val
115 120 125
Leu Val Val Phe Phe Gly Ala Glu Tyr Val Val Arg Leu Trp Ser Ala
130 135 140
Gly Cys Arg Ser Lys Tyr Val Gly Val Trp Gly Arg Leu Arg Phe Ala
145 150 155 160
Arg Lys Pro Ile Ser Val Ile Asp Leu Ile Val Val Val Ala Ser Val
165 170 175

Ile Val Leu Cys Val Gly Ser Asn Gly Gln Val Phe Ala Thr Ser Ala
 180 185 190
 Ile Arg Gly Ile Arg Phe Leu Gln Ile Leu Arg Met Leu His Val Asp
 195 200 205
 Arg Gln Gly Gly Thr Trp Arg Leu Leu Gly Ser Val Val Phe Ile His
 210 215 220
 Arg Gln Glu Leu Ile Thr Thr Leu Tyr Ile Gly Phe Leu Gly Leu Ile
 225 230 235 240
 Phe Ser Ser Tyr Phe Val Tyr Leu Ala Glu Lys Asp Ala Ile Asp Ser
 245 250 255
 Ser Gly Glu Tyr Gln Phe Gly Ser Tyr Ala Asp Ala Leu Trp Trp Gly
 260 265 270
 Val Val Thr Val Thr Thr Ile Gly Tyr Gly Asp Lys Val Pro Gln Thr
 275 280 285
 Trp Ile Gly Lys Thr Ile Ala Ser Cys Phe Ser Val Phe Ala Ile Ser
 290 295 300
 Phe Phe Ala Leu Pro Ala Gly Ile Leu Gly Ser Gly Phe Ala Leu Lys
 305 310 315 320
 Val Gln Gln Lys Gln Arg Gln Lys His Phe Asn Arg Gln Ile Pro Ala
 325 330 335
 Ala Ala Ser Leu Ile Gln Thr Ala Trp Arg Cys Tyr Ala Ala Glu Asn
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 Phe Ser Val Leu Ser Thr Ile Glu Gln Tyr Ala Ala Leu Ala Thr Gly
 35 40 45
 Thr Leu Phe Trp Met Glu Ile Val Leu Val Phe Phe Gly Thr Glu
 50 55 60
 Tyr Val Val Arg Leu Trp Ser Ala Gly Cys Arg Ser Lys Tyr Val Gly
 65 70 75 80
 Leu Trp Gly Arg Leu Arg Phe Ala Arg Lys Pro Ile Ser Ile Ile Asp
 85 90 95

126

Leu Ile Val Val Val Ala Ser Met Val Val Leu Cys Val Gly Ser Lys
 100 105 110
 Gly Gln Val Phe Ala Thr Ser Ala Ile Arg Gly Ile Arg Phe Leu Gln
 115 120 125
 Ile Leu Arg Met Leu His Val Asp Arg Gln Gly Gly Thr Trp Arg Leu
 130 135 140
 Leu Gly Ser Val Val Phe Ile His Arg Gln Glu Leu Ile Thr Thr Leu
 145 150 155 160
 Tyr Ile Gly Phe Leu Gly Leu Ile Phe Ser Ser Tyr Phe Val Tyr Leu
 165 170 175
 Ala Glu Lys Asp Ala Val Asn Glu Ser Gly Arg Val Glu Phe Gly Ser
 180 185 190
 Tyr Ala Asp Ala Leu Trp Trp Gly Val Val Thr Val Thr Thr Ile Gly
 195 200 205
 Tyr Gly Asp Lys Val Pro Gln Thr Trp Val Gly Lys Thr Ile Ala Ser
 210 215 220
 Cys Phe Ser Val Phe Ala Ile Ser Phe Phe Ala Leu Pro Ala Gly Ile
 225 230 235 240
 Leu Gly Ser Gly Phe Ala Leu Lys Val Gln Gln Lys Gln Arg Gln Lys
 245 250 255
 His Phe Asn Arg Gln Ile Pro Ala Ala Ala Ser Leu Ile Gln Thr Ala
 260 265 270
 Trp Arg Cys Tyr Ala Ala Glu Asn Pro Asp Ser Ser Thr Trp Lys Ile
 275 280 285
 Tyr Ile Arg Lys Ala Pro Arg Ser His Thr Leu Leu Ser Pro Ser Pro
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 Lys Pro Lys Lys Ser Val Val Val Lys Lys Lys Phe Lys Leu Asp
 305 310 315 320
 Lys Asp Asn Gly Val Thr Pro Gly Glu Lys Met Leu Thr Val Pro His
 325 330 335
 Ile Thr Cys Asp Pro Pro Glu Glu Arg Arg Leu Asp His Phe Ser Val
 340 345 350
 Asp Gly Tyr Asp Ser Ser Val Arg Lys Ser Pro Thr Leu Leu Glu Val
 355 360 365
 Ser Met Pro His Phe Met Arg Thr Asn Ser Phe Ala Glu Asp Leu Asp
 370 375 380
 Leu Glu Gly Glu Thr Leu Leu Thr Pro Ile Thr His Ile Ser Gln Leu
 385 390 395 400
 Arg Glu His His Arg Ala Thr Ile Lys Val Ile Arg Arg Met Gln Tyr
 405 410 415
 Phe Val Ala Lys Lys Phe Gln Gln Ala Arg Lys Pro Tyr Asp Val
 420 425 430

Arg Asp Val Ile Glu Gln Tyr Ser Gln Gly His Leu Asn Leu Met Arg
435 440 445

Val Ile Lys Glu Leu Gln Arg Arg Leu Asp Gln Ser Ile Gly Lys Pro
450 455 460

Ser Leu Phe Ile Ser Val Ser Glu Lys Ser Lys Asp Arg Gly Ser Asn
465 470 475 480

Thr Ile Gly Ala Arg Leu Asn Arg Val Glu Asp Lys Val Thr Gln Leu
485 490 495

Asp Gln Arg Leu Ala Leu Ile Thr Asp Met Leu His Gln Leu Leu Ser
500 505 510

Leu His Gly Gly Ser Thr Pro Gly Ser Gly Gly Pro Pro Arg Glu Gly
515 520 525

Gly Ala His Ile Thr Gln Pro Cys Gly Ser Gly Gly Ser Val Asp Pro
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Met Glu Thr Arg Gly Ser Arg Leu Thr
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ggc ggc cag ggc cgc gtc tac aac ttc ctc gag cgt ccc acc ggc tgg 162
Gly Gly Gln Gly Arg Val Tyr Asn Phe Leu Glu Arg Pro Thr Gly Trp
10 15 20 25

aaa tgc ttc gtt tac cac ttc gcc gtc ttc ctc atc gtc ctg gtc tgc 210
Lys Cys Phe Val Tyr His Phe Ala Val Phe Leu Ile Val Leu Val Cys
30 35 40

ctc atc ttc agc gtg ctg tcc acc atc gag cag tat gcc gcc ctg gcc 258
Leu Ile Phe Ser Val Leu Ser Thr Ile Glu Gln Tyr Ala Ala Leu Ala
45 50 55

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Thr Gly Thr Leu Phe Trp Met Glu Ile Val Leu Val Val Phe Phe Gly
60 65 70

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Thr Glu Tyr Val Val Arg Leu Trp Ser Ala Gly Cys Arg Ser Lys Tyr
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acc ctg tac atc ggc ttccctg ggc ctc atc ttctcc tcgtac ttt gtg Thr Leu Tyr Ile Gly Phe Leu Gly Leu Ile Phe Ser Ser Tyr Phe Val 170 175 180 185	642
tac ctg gct gag aag gac gcg gtg aac gag tca ggc cgc gtg gag ttc Tyr Leu Ala Glu Lys Asp Ala Val Asn Glu Ser Gly Arg Val Glu Phe 190 195 200	690
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gag ggc ggg gcc cac atc acc cag ccc tgc ggc agt ggc ggc tcc gtc Glu Gly Gly Ala His Ile Thr Gln Pro Cys Gly Ser Gly Gly Ser Val 540 545 550	1746
gac cct gag ctc ttc ctg ccc agc aac acc ctg ccc acc tac gag cag Asp Pro Glu Leu Phe Leu Pro Ser Asn Thr Leu Pro Thr Tyr Glu Gln 555 560 565	1794
ctg acc gtg ccc agg agg ggc ccc gat gag ggg tcc tgaggagggg Leu Thr Val Pro Arg Arg Gly Pro Asp Glu Gly Ser 570 575 580	1840
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	20							25							30
Ala	Val	Phe	Leu	Ile	Val	Leu	Val	Cys	Leu	Ile	Phe	Ser	Val	Leu	Ser
		35					40								45
Thr	Ile	Glu	Gln	Tyr	Ala	Ala	Leu	Ala	Thr	Gly	Thr	Leu	Phe	Trp	Met
		50					55								60
Glu	Ile	Val	Leu	Val	Val	Phe	Phe	Gly	Thr	Glu	Tyr	Val	Val	Arg	Leu
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Trp	Ser	Ala	Gly	Cys	Arg	Ser	Lys	Tyr	Val	Gly	Leu	Trp	Gly	Arg	Leu
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Arg	Phe	Ala	Arg	Lys	Pro	Ile	Ser	Ile	Ile	Asp	Leu	Ile	Val	Val	Val
									100		105				110
Ala	Ser	Met	Val	Val	Leu	Cys	Val	Gly	Ser	Lys	Gly	Gln	Val	Phe	Ala
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Thr	Ser	Ala	Ile	Arg	Gly	Ile	Arg	Phe	Leu	Gln	Ile	Leu	Arg	Met	Leu
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His Val Asp Arg Gln Gly Gly Thr Trp Arg Leu Leu Gly Ser Val Val
 145 150 155 160
 Phe Ile His Arg Gln Glu Leu Ile Thr Thr Leu Tyr Ile Gly Phe Leu
 165 170 175
 Gly Leu Ile Phe Ser Ser Tyr Phe Val Tyr Leu Ala Glu Lys Asp Ala
 180 185 190
 Val Asn Glu Ser Gly Arg Val Glu Phe Gly Ser Tyr Ala Asp Ala Leu
 195 200 205
 Trp Trp Gly Val Val Thr Val Thr Thr Ile Gly Tyr Gly Asp Lys Val
 210 215 220
 Pro Gln Thr Trp Val Gly Lys Thr Ile Ala Ser Cys Phe Ser Val Phe
 225 230 235 240
 Ala Ile Ser Phe Phe Ala Leu Pro Ala Gly Ile Leu Gly Ser Gly Phe
 245 250 255
 Ala Leu Lys Val Gln Gln Lys Gln Arg Gln Lys His Phe Asn Arg Gln
 260 265 270
 Ile Pro Ala Ala Ala Ser Leu Ile Gln Thr Ala Trp Arg Cys Tyr Ala
 275 280 285
 Ala Glu Asn Pro Asp Ser Ser Thr Trp Lys Ile Tyr Ile Arg Lys Ala
 290 295 300
 Pro Arg Ser His Thr Leu Leu Ser Pro Ser Pro Lys Pro Lys Lys Ser
 305 310 315 320
 Val Val Val Lys Lys Lys Phe Lys Leu Asp Lys Asp Asn Gly Val
 325 330 335
 Thr Pro Gly Glu Lys Met Leu Thr Val Pro His Ile Thr Cys Asp Pro
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 Pro Glu Glu Arg Arg Leu Asp His Phe Ser Val Asp Gly Tyr Asp Ser
 355 360 365
 Ser Val Arg Lys Ser Pro Thr Leu Leu Glu Val Ser Met Pro His Phe
 370 375 380
 Met Arg Thr Asn Ser Phe Ala Glu Asp Leu Asp Leu Glu Gly Glu Thr
 385 390 395 400
 Leu Leu Thr Pro Ile Thr His Ile Ser Gln Leu Arg Glu His His Arg
 405 410 415
 Ala Thr Ile Lys Val Ile Arg Arg Met Gln Tyr Phe Val Ala Lys Lys
 420 425 430
 Lys Phe Gln Gln Ala Arg Lys Pro Tyr Asp Val Arg Asp Val Ile Glu
 435 440 445
 Gln Tyr Ser Gln Gly His Leu Asn Leu Met Val Arg Ile Lys Glu Leu
 450 455 460
 Gln Arg Arg Leu Asp Gln Ser Ile Gly Lys Pro Ser Leu Phe Ile Ser
 465 470 475 480

Val Ser Glu Lys Ser Lys Asp Arg Gly Ser Asn Thr Ile Gly Ala Arg
485 490 495

Leu Asn Arg Val Glu Asp Lys Val Thr Gln Leu Asp Gln Arg Leu Ala
500 505 510

Leu Ile Thr Asp Met Leu His Gln Leu Leu Ser Leu His Gly Gly Ser
515 520 525

Thr Pro Gly Ser Gly Gly Pro Pro Arg Glu Gly Gly Ala His Ile Thr
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Gln Pro Cys Gly Ser Gly Ser Val Asp Pro Glu Leu Phe Leu Pro
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Pro Asp Glu Gly Ser
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